

Attorney Docket No.: 2523-082

Response to Action Mailed November 30, 2004
Serial No. 10/735,820**Amendments to the Specification:****Please replace the ten paragraphs beginning at page 3, line 2, and ending at page 6, line 18, by the following amended paragraphs:**

To attain the said object, ~~[[the]]~~ a coreless motor relating to ~~claim 1~~ the invention is to be the one equipped with a ring-shaped coil yoke fitted to the interior of a casing, which has a ~~conductive-use~~ conductive coil connected to a ring-shaped magnet, whose external circumference face ~~stands opposed to~~ opposes the internal circumference face of the coil yoke, with the coil designed to revolve jointly with the rotating axis following power input to the said coil; wherein the said coil confronts the upper and lower faces of the magnet and consists of a flat portion whose plane part takes an arc form and of a curved-and-folded portion composed of a winding unit confronting the external circumference side face of the magnet, while the section from one end of the lead wire composing these winding units to its other end constitutes a continuous hollow unit; wherein a thin-sheet flange is installed on the lower part of the coil holder fixed to the periphery of the said rotating ~~axis, while multiple~~ axis and a plurality of said coils are attached so as to be arranged in line with the circumference direction of the magnet by fixing the flat portion on the lower side of each coil to the flange; and wherein ~~thin/round~~ thin, round, annulus-shaped upper-side reinforcing plates are attached to the flat portion on the upper side of each coil.

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The coreless motor relating to ~~claim 2~~ of this invention ~~[[is]]~~ may ~~be~~ so composed that ~~thin/round~~ thin, round, annulus-shaped lower-side reinforcing plates are attached to further below the flat portion of the coil which is fitted to the lower face of the said coil folder flange.

The coreless motor relating to ~~claim 3~~ of this invention ~~[[is]]~~ may further be so composed that the aforementioned lower-side reinforcing plates are installed in parallel with the flange ~~through the mediation~~ by means of a spacer, whose length is almost equal to the thickness of the flat portion on the lower side of the coil, while the flat portion on the lower side of the coil is inserted to, and fixed in, the gap formed by the spacer between the flange and the lower-side reinforcing plates.

The coreless motor relating to ~~claim 5~~ of this invention ~~[[is so]]~~ may be composed so that the said upper-side reinforcing plate is made of conductive materials, that one end of each coil is linked to the said upper-side reinforcing plate, that the other end of each coil is connected to the commutator formed around the rotating axis, which is set below the coil holder.

The coreless motor relating to ~~claim 5~~ of this invention ~~is the one~~ may be equipped with a ring-shaped coil yoke fitted to the interior of a casing, which has a conductive~~[[use]]~~ coil connected to a ring-shaped magnet, whose external circumference face stands opposed to the internal circumference face of the coil yoke, with the coil designed to revolve jointly with the rotating axis following power input to the said coil; wherein the said coil confronts the upper and lower faces of the magnet and consists of a flat portion whose plane part takes an arc

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form and of a curved-and-folded portion composed of a winding unit confronting the external circumference side face of the magnet, while the section from one end of the lead wire composing these winding units to its other end constitutes a continuous hollow unit; wherein the said magnet is ~~4-polar magnetization arranged in the radius direction, and as for the coils mentioned above, 3~~ may comprise four poles arranged in the radial direction where three of said coils are installed around the rotating axis; and wherein for commutators fixed around the rotating axis, 6-segment ones are used, with 2 a six-segment commutator may be fixed around the rotating axis, with two brushes set in positions each forming an angle of 90° in relation to the commutator.

The coreless motor relating to ~~claim 6~~ of this invention is ~~the one~~ may be one which is equipped with a ring-shaped coil yoke fitted to the interior of a casing; which as a ~~conductive-use~~ conductive coil connected to a ring-shaped magnet, whose external circumference face stands opposed to the internal circumference face of the coil yoke, with the coil designed to revolve jointly with the rotating axis following power input to the said coil; wherein the said coil confronts the upper and lower faces of the magnet and consists of a flat portion whose plane part takes an arc form and of a curved-and-folded portion composed of a winding unit confronting the external circumference side face of the magnet, while the section from one end of the lead wire composing these winding units to its other end constitutes a continuous hollow unit; wherein the said magnet is ~~2-polar magnetization arranged in the diameter direction, and as for the coils~~

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~~mentioned above, 3~~ comprises two poles arranged in the circumferential direction
and three of said coils are installed around the rotating axis; and wherein ~~for~~
~~commutators fixed around the rotating axis, 3-segment ones are used, with 2 2 a~~
three-segment commutator is fixed around the rotating axis, with two brushes set
in positions parallel with each other in relation to the commutator.

The coreless motor relating to ~~claim 7~~ of this invention ~~[[is]]~~ may further be
so composed that the aforementioned magnet is fixed to the external
circumference of the ring-shaped magnet ~~holder, holder~~ which is equipped with a
cylinder unit, designed to hold a bearing, bearing in its upper ~~[[part,]] part~~ with
this cylinder unit inserted into, and fitted to, a boss formed in the center of the top
panel of the casing, while the said rotating axis is ~~held, in a revolution-possible~~
~~way, held~~ by a bearing installed within the said cylinder unit.

The coreless motor relating to ~~claim 8~~ of this invention ~~[[is]]~~ may further be
such that its magnet holder mentioned above has a dented portion on its lower
side, with the upper portion of the coil holder composed so as to touch this dented
portion of the magnet holder.

The coreless motor relating to ~~claim 9~~ of this invention ~~is such~~ still further
may be one in which the interior surface of the said coil yoke is shaped ~~in-line to~~
correspond with the external circumference side face and ~~upper/lower~~ upper and
lower faces of the coil, and the coil yoke is formed by bonding together the upper
half portion of the coil yoke that contains the upper half of the coil and its lower
half portion that contains the lower half of the coil.

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The coreless motor relating to ~~claim 10~~ of this invention is ~~such~~ moreover may be one wherein the said magnet is composed by arranging 4 arc-shaped magnets, individually magnetized in the ~~radius~~ radial direction, in a ring form.

Please replace the paragraph beginning at page 9, line 22, by the following amended paragraph:

Furthermore, an annulus ring-shaped upper-side reinforcing plate 15 is adhered to the upper face of flat portion 8a on the top of the coil. This upper-side reinforcing plate is made of a conductive metal sheet, while wire ~~connection-use~~ connection protrusions 15a are formed at 3 points of the external circumference, as shown in Fig. ~~[[4,]]~~ 2, so that it will be possible to effect electric connection between coils by linking an end of each coil to the said protrusion.

Please replace the paragraph beginning at page 11, line 5, by the following amended paragraph:

While the plane part of the said coil yoke is of a ring shape, and its internal structure is so arranged that the external circumference side face and ~~upper/lower~~ upper and lower faces of magnet 5 are enclosed from outside in the radius direction, with the internal face thus forming ~~[[an]]~~ a concave shape following the patterns of the exterior circumference side face and ~~upper/lower~~ upper and lower faces of the magnet; as shown in Fig. 6, the coil yoke is composed of upper half portion 7a and lower half portion 7b.

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Please replace the paragraph beginning at page 11, line 22, by the following amended paragraph:

In the said motor of this invention, lead wires composing the coil form an almost right angle with the revolving direction of the coil, and in addition, coil 8 surrounds not only the external circumference face of magnet 5 but also its ~~upper/lower~~ upper and lower faces as well, while coil yoke 7 covers not only the external circumference face but also the ~~upper/lower~~ upper and lower faces of the coil, so that most of magnet flux radiated from the magnet is led to the coil yoke; as such, consumption of driving electric power to the rotational driving torque of rotating axis 4, which is the motor output, can be small, such that an excellent motor capable of driving at a low electric power and characterized by high energy efficiency can be obtained.